

REMARKS

Claims 1-32 are pending in the application with claims 11-12, 16, 23 and 26-27 considered to contain allowable subject matter.

Main independent claim 1 has been amended to better describe the invention. The microphone preamplifier is a differential amplifier with first and second signal input terminals and an output terminal. In Fig. 1, the "first signal input terminal" corresponds to the inverting (-) input of the amplifier and the second terminal to the amplifier non-inverting (+) input. The signal from the microphone is to be applied to the second (+) signal input terminal. A feedback circuit that has a low pass transfer function is coupled between the amplifier output terminal and the first (-) signal input terminal. As described in [0067] of the application publication 2007/0076904, the purpose of the feedback circuit is to assure that the overall gain of the amplifier with feedback is relatively low at low frequencies and relatively high at frequencies in the audio band. The claim also includes a semiconductor substrate and sets forth that the amplifier and the feedback circuit are integrated on the semiconductor substrate.

Claims 1-2, 8-10, 13-15, 17-18, 20-22, 25, 28-29 and 31-32 are rejected over the AAPA Eschauzier, U.S. 6,160,450. Claim 1 is the sole independent claim of the application and all of the other claims depend from it.

In rejecting claim 1, the Examiner refers to the preamplifier terminal VelectretM in Fig. 3 of AAPA and equates this terminal with applicant's claimed "first input terminal". However, the terminal VelectretM of the AAPA is clearly marked as "gnd" on Fig. 3 and functions as a common ground node for the entire preamplifier as disclosed at column 2, line 22 of the AAPA. In claim 1 of the subject application, the first input terminal is not connected to ground. It received the signal applied through the feedback circuit.

The language of claim 1 defines the first and second input terminals to be signal inputs of a differential amplifier. The term differential amplifier is well known in the amplifier art and

implies that the first (and second) input terminals are electrically interconnected to respective preamplifier signal input terminals (as opposed to a ground line that does not carry any signal) of active semiconductor devices such as a base or an emitter node of a bipolar transistor or a gate node of MOS transistor.

In the terminology of application claim 1, the "first input terminal" of the preamplifier in Fig. 3 of the AAPA is terminal "in p" while the second input terminal is "in m". Applicant also respectfully submits that Fig. 3 of the AAPA fails to disclose the recited feedback circuit having a low-pass frequency transfer function coupled between the preamplifier output and the "first signal input terminal". Fig. 3 of the AAPA discloses a low-pass frequency transfer function LPF coupled between the preamplifier output and a ground line, VelectretM.

The Examiner should note in Fig. 3 of the AAPA that both the microphone signal and the signal from the low pass filter are applied to the same terminal "in p" of the amplifier. In the subject invention the microphone signal is applied to the second (+) terminal (corresponding to "in m" of the AAPA) and the feedback signal to the first (-) terminal.

Also, as set forth at AAPA column 2, lines 22-24, the AAPA uses his circuit to get a good low frequency response. This differs from the invention, wherein the feedback circuit is used to reduce the low frequency response of a preamplifier that is to provide good response to the higher end audio frequencies.

The Examiner notes that the AAPA also fails to disclose that the feedback circuit, LPF, in Fig. 3, is integrated on the same semiconductor substrate as the microphone preamplifier. In fact, the AAPA explicitly teaches (in column 2, lines 23-27) the skilled person away from integrating the feedback circuit because the components of the feedback circuit (filter) are of too a large size to be integrated as stated.

The Examiner attempts to rebut this clear piece of teaching away by referring to the generally well known concept of integrating electronic components on a semiconductor substrate.

Applicant respectfully submits that the Examiner's position is not well founded since it fails to address the specific circumstances that are relevant to the present invention and its technical field. The AAPA addresses the issue of integrating feedback circuit components in the context of microphone preamplifiers and explicitly recommends making the feedback circuit components be external - contrary to the claimed subject matter. This is contrary to the present invention as set forth in main independent claim 1, which also is directed to a microphone preamplifier. That is, the invention of the application proceeds opposite to the teachings of the prior art in the same field.

Accordingly, claim 1 clearly defines a novel and advantageous circuit that is different in function and structure from the AAPA references and is neither shown nor suggested by the prior art. Therefore, this claim and its dependent claims are clearly patentable and should be allowed.

Claims 3 and 4 are rejected over the AAPA in view of Tsinker, U.S. 6,150,875, which is cited to show a filter with a zero and a pole. Also, claims 5-7 are rejected over the AAPA in view of Bhandari, et al., U.S. 6,424,480, which is cited to show transition points. Further, claims 19 and 30 are rejected as obvious over the AAPA in view of French, et al., U.S. 5,337,011, cited for teaching providing bias by using cross-coupled diodes. Lastly, claim 24 is rejected over the AAPA in view of Huckins, et al., U.S. 6,731,163, cited for teaching a differential amplifier. All of the claims referred to depend from claim 1. The combination of any of these secondary references with the principal AAPA reference does not meet the basic subject matter set forth in main claim 1. Therefore, all of these claims are patentable and should be allowed.

A new claim 33 is added that further defines the operational characteristics of the preamplifier in terms of the overall gain of the differential amplifier at high frequency and the function of the feedback circuit to reduce the gain at low frequencies. This novel arrangement also is not shown in the AAPA which is designed to produce a preamplifier having low frequency characteristics.

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Prompt and favorable action is requested.

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